I. AMENDMENTS

The claims, after entry of all amendments, recite as follows:

1. (Previously Canceled) ~~A method for determining the effectiveness of a therapeutic regimen for the treatment of a cancer in a subject, the method comprising:~~

~~(a) determining a genomic polymorphism in the subject with said cancer; and~~

~~(b) concluding that the therapeutic regimen will be effective if the genomic polymorphism exhibited by the subject is of a certain type.~~

2. (Previously Canceled) ~~The method of claim 1 wherein the therapeutic regimen comprises administering a chemotherapeutic drug to the subject.~~

3. (Previously Canceled) ~~The method of claim 2 wherein the chemotherapeutic drug is a TS directed drug.~~

4. (Previously Canceled) ~~The method of claim 3 wherein the TS directed drug is a fluropyrimidine.~~

5. (Previously Canceled) ~~The method of claim 4 wherein the fluoropyrimidine is 5-fluorouracil.~~

6. (Previously Canceled) ~~The method of claim 5 wherein the subject is a human subject.~~

7. (Previously Canceled) ~~The method of claim 6 wherein determining the genomic polymorphism of the subject comprises determining the subject's genotype at a tandemly repeated 28 base pair sequence in the thymidilate synthase gene's 5' UTR whereby the subject will exhibit the poorest response to administration of 5-fluorouracil if the subject's genotype is homozygous for a triple repeat of the tandemly repeated sequence, a less poor response to administration of 5-fluorouracil if the subject's genotype is heterozygous for a double repeat and a triple repeat of the tandemly repeated sequence, and the best response to administration of 5-fluorouracil if the subject's genotype is homozygous for a double repeat of the tandemly repeated sequence.~~

8. (Previously Canceled) ~~The method of claim 6 wherein determining the subject's genotype further comprises:~~

~~extracting genomic DNA from a biological sample of the subject;~~

~~amplifying the 5' UTR of the thymidilate synthase gene of said genomic DNA using polymerase chain reaction; and~~

~~analyzing the polymerase chain reaction product to determine the subject's genotype.~~

9. (Previously Canceled) ~~The method of claim 8 wherein analysis of the polymerase chain reaction product is performed using electrophoresis.~~

10. (Previously Canceled) ~~The method of claim 1 wherein the cancer is breast cancer.~~

11. (Previously Canceled) ~~The method of claim 1 wherein the cancer is colorectal cancer.~~

12. (Previously Canceled) ~~The method of claim 1 wherein the cancer is gastric cancer.~~

13. (Previously Canceled) ~~The method of claim 1 wherein the cancer is esophageal cancer.~~

14. (Previously Canceled) ~~The method of claim 1 wherein the cancer is Burkitt's lymphoma.~~

15. (Previously Canceled) ~~The method of claim 1 wherein the cancer is B follicular cell lymphoma.~~

16. (Previously Canceled) ~~The method of claim 1 wherein the cancer is small cell lung carcinoma.~~

17. (Previously Canceled) ~~A method for predicting the effect of a therapeutic regimen for treating a cancer in a human subject wherein a chemotherapeutic drug is administered to the human, the method comprising:~~

~~associating a genomic polymorphism of the human subject with intratumoral expression of a gene wherein said gene expression influences the efficacy of said therapeutic regimen.~~

18. (Previously Canceled) ~~The method of claim 17 wherein the chemotherapeutic drug is a TS directed drug.~~

19. (Previously Canceled) ~~The method of claim 18 wherein the gene is thymidilate synthase gene.~~

20. (Previously Canceled) ~~The method of claim 19 wherein the genomic polymorphism of the human subject is the subject's genotype at a tandemly repeated 28 base pair sequence in the thymidilate synthase gene 5' UTR.~~

21. (Previously Canceled) ~~The method of claim 20 wherein the therapeutic regimen is most effective if the subject's genotype is homozygous for a double repeat of the tandemly repeated~~

~~sequence, is less effective if the subject's genotype is heterozygous for a double and a triple repeat of the tandemly repeated sequence and is least effective if the subject's genotype is homozygous for a triple repeat of the tandemly repeated sequence.~~

22. (Previously Canceled) ~~A method for determining the expression level of a gene in cells of a subject, the method comprising:~~

~~determining a genomic polymorphism of the subject; and~~

~~associating the expression level of said gene with said genomic polymorphism.~~

23. (Previously Canceled) ~~The method of claim 22 wherein the gene is thymidylate synthase gene.~~

24. (Previously Canceled) ~~The method of claim 23 wherein the genomic polymorphism of the subject is the subject's genotype at a tandemly repeated 28 base pair sequence in the thymidilate synthase gene's 5' UTR.~~

25. (Previously Canceled) ~~The method of claim 24 wherein the expression level of said gene is highest if the subject's genotype is homozygous for a triple repeat of the tandemly repeated sequence, is less if the subject's genotype is heterozygous for a double and a triple repeat of the tandemly repeated sequence and is least if the subject's genotype is homozygous for a double repeat of the tandemly repeated sequence.~~

26. (Previously Canceled) ~~A method for determining the effectiveness of a chemotherapeutic regimen wherein a TS directed drug is administered to a human subject, the method comprising:~~

~~determining the subject's genotype at a tandemly repeated 28 base pair sequence in the thymidilate synthase gene's 5' UTR whereby the subject will exhibit the poorest response to administration of the TS directed drug if the subject's genotype is homozygous for a triple repeat of the tandemly repeated sequence, a less poor response to administration of the TS directed drug if the subject's genotype is heterozygous for a double repeat and a triple repeat of the tandemly repeated sequence, and the best response to administration of the TS directed drug if the subject's genotype is homozygous for a double repeat of the tandemly repeated sequence.~~

27. (Previously Canceled) ~~The method of claim 26 wherein the TS directed drug is a fluoropyrimidine.~~

28. (Previously Canceled) ~~The method of claim 27 wherein the fluoropyrimidine is 5-fluorouracil~~.

29. (Previously Canceled) ~~A method for determining an appropriate chemotherapeutic regimen to treat a cancer in a subject, the method comprising:~~

~~associating a genomic polymorphism of the subject with the effectiveness of a chemotherapeutic regimen~~.

30. (Previously Canceled) ~~The method of claim 29 wherein the method is used to select or reject a chemotherapeutic drug to treat the cancer~~.

31. (Previously Canceled) ~~A kit for use in screening for the effectiveness of TS directed drug therapy in human subjects~~.

32. (Previously Canceled) ~~The kit of claim 31 comprising:~~

~~all or some of the positive controls, negative controls, reagents, primers, sequencing markers, probes and antibodies for determining the presence or absence of the tandemly repeated 28 base pair nucleic acid sequence that defines the genomic polymorphism in the 5' UTR of the TS gene~~.

33. (Previously Canceled) ~~The kit of claim 31 wherein the kit components may be provided in solution or as a liquid dispersion or the like~~.

34. (Previously Canceled) ~~The kit of claim 31 comprising DNA tandemly repeated sequences that determine the type of genomic polymorphism of the TS gene in Tris EDTA buffer solution preferably kept at 4 °C~~.

35. (Currently Canceled) ~~A method for the treatment of a cancer in a subject, the method comprising:~~

~~(a) determining a genomic polymorphism in the subject with said cancer;~~

~~(b) selecting a chemotherapeutic drug to administer to said subject to treat said cancer depending on the type of genomic polymorphism determined in step (a); and~~

~~(c) administering said chemotherapeutic drug to said subject,~~

~~wherein the cancer is a cancer selected from the group consisting of breast cancer, colorectal cancer, gastric cancer, esophageal cancer, Burkitt's lymphoma, B follicular cell lymphoma and small cell lung carcinoma.~~

36. (Currently Canceled) ~~The method of claim 35 wherein the cancer is colorectal cancer.~~

37. (Currently Canceled) ~~The method of claim 35 wherein determining the genomic polymorphism of the subject comprises determining the subject's genotype at a tandemly repeated 28 base pair sequence in the thymidylate synthase (TS) gene's 5' untranslated region (UTR), wherein the genotype is homozygous for a triple repeat of the tandemly repeated sequence, heterozygous for a double repeat and a triple repeat of the tandemly repeated sequence, or homozygous for a double repeat of the tandemly repeated sequence.~~

38. (Currently Canceled) ~~The method of claim 36 wherein the chemotherapeutic drug is a TS directed drug.~~

39. (Currently Canceled) ~~The method of claim 37 wherein the TS directed drug is a fluropyrimidine.~~

40. (Currently Canceled) ~~The method of claim 38 wherein the fluoropyrimidine is 5-fluorouracil.~~

41. (Currently Canceled) ~~The method of claim 39 wherein the subject is a human subject.~~

42. (Currently Canceled) ~~The method of claim 40 wherein determining the subject's genotype further comprises:~~

~~extracting genomic DNA from a biological sample of the subject;~~

~~amplifying the 5' UTR of the thymidylate synthase gene of said genomic DNA using polymerase chain reaction; and~~

~~analyzing the polymerase chain reaction product to determine the subject's genotype.~~

43. (Currently Canceled) ~~The method of claim 44 wherein analysis of the polymerase chain reaction product is performed using electrophoresis.~~

44. (Currently Canceled) ~~A method for the treatment of a cancer in a subject, the method comprising:~~

~~(a) determining the subject's genotype at a tandemly repeated 28 base pair sequence in the thymidylate synthase gene's 5' UTR, wherein the subject's genotype is homozygous for a triple repeat of the tandemly repeated sequence, heterozygous for a double repeat and a triple repeat of the tandemly repeated sequence, or homozygous for a double repeat of the tandemly repeated sequence, and~~

~~(b) administering a TS-directed drug to the subject if the subject's genotype is homozygous for a double repeat of the tandemly repeated sequence,~~

~~wherein the cancer is a cancer selected from the group consisting of breast cancer, colorectal cancer, gastric cancer, esophageal cancer, Burkitt's lymphoma, B follicular cell lymphoma and small cell lung carcinoma.~~

45. (Currently Canceled) ~~The method of claim 43 wherein determining the subject's genotype further comprises:~~

~~extracting genomic DNA from a biological sample of the subject;~~

~~amplifying the 5' UTR of the thymidylate synthase gene of said genomic DNA using polymerase chain reaction; and~~

~~analyzing the polymerase chain reaction product to determine the subject's genotype.~~

46. (Currently Canceled) ~~The method of claim 44 wherein analysis of the polymerase chain reaction product is performed using electrophoresis.~~

Please amend the following claims:

47. (Currently Amended) A method for ~~determining the suitability of treating a cancer in a subject using a chemotherapeutic drug, the method~~ screening cancer cells for sensitivity to a chemotherapeutic drug, comprising:

taking a biological sample of said cancer cells from a ~~the~~ subject; and

~~using the biological sample to determine~~ determining the genotype of a pre-selected gene of the cancer cells ~~subject~~, wherein said genotype determines the intratumoral expression of said gene, and correlating ~~wherein~~ said gene expression ~~determines the response of the subject~~ to said sensitivity to said chemotherapeutic drug.

48. (Currently Amended) The method of claim 47 wherein ~~the~~ said cancer cells are ~~is~~ colorectal cancer cells.

49. (Currently Amended) The method of claim 48 wherein ~~the~~ said pre-selected gene is thymidylate synthase gene.

50. (Previously Added) The method of claim 49 wherein determining the genotype comprises determining the subject's genotype at a tandemly repeated 28 base pair sequence in the

thymidylate synthase (TS) gene's 5' untranslated region (UTR), wherein the genotype is homozygous for a triple repeat of the tandemly repeated sequence, heterozygous for a double repeat and a triple repeat of the tandemly repeated sequence, or homozygous for a double repeat of the tandemly repeated sequence.

51. (Previously Added) The method of claim 50 wherein the chemotherapeutic drug is a TS directed drug.

52. (Previously Added) The method of claim 51 wherein the TS directed drug is a fluropyrimidine.

53. (Previously Added) The method of claim 52 wherein the fluoropyrimidine is 5-fluorouracil.

54. (Previously Added) The method of claim 53 wherein the subject is a human subject.

55. (Currently Amended) The method of claim 54 wherein determining the subject's genotype ~~further~~ comprises:

~~extracting genomic DNA from a biological sample of the subject;~~

~~amplifying the~~ determining the genotype at the 5' UTR of the thymidylate synthase gene of said genomic DNA from said cell ~~using polymerase chain reaction; and~~

~~analyzing the polymerase chain reaction product to determine the subject's genotype.~~

56. (Currently Amended) The method of claim 55 wherein said determining the genotype is by analysis of the polymerase chain reaction product of the 5'UTR ~~is performed using electrophoresis~~.

57. (Currently Amended) A kit for use in screening for the effectiveness of TS directed drug therapy in human subjects, the kit comprising: means for determining a genomic polymorphism of the 5 'UTR of the TS gene; and instructions for correlating the genomic polymorphism of the 5' UTR of the TS gene to sensitivity to TS directed drug therapy ~~use of the kit~~.

58. (Currently Amended) The kit of claim 57 wherein the means for determining said genomic polymorphism ~~comprise:~~ all or some of the positive controls, negative controls, reagents, primers, sequencing markers, and probes for determining the presence or absence of a tandemly repeated 28 base-pair nucleic acid sequence that defines the genomic polymorphism in the 5' UTR of the TS gene ~~gen~~.

59. (Currently Amended) The kit of claim 58 wherein the kit components may be provided in solution or as a liquid dispersion ~~or the like~~.

60. (Previously Added) The kit of claim 58 comprising DNA tandemly repeated sequences that determine the type of genomic polymorphism of the TS gene in Tris-EDTA buffer solution kept at about 4°C.